at least one metal layer comprising at least one region, said region comprising an area of said metal layer of at least 100 microns and comprising a plurality of conductors to interconnect points on said integrated circuit, said conductors comprising a plurality of preferred diagonal direction conductors and at least one zag conductor;

said preferred diagonal direction conductors being deposed in a preferred diagonal direction, wherein said preferred diagonal direction defines a direction relative to the boundaries of the integrated circuit; and

said at least one zag conductor being deposed in a Manhattan direction and being coupled to one of said preferred diagonal direction conductors so as to interconnect points on said integrated circuit using at least one zag conductor and at least one preferred diagonal direction conductor.

[c2]

2.The integrated circuit of claim 1, wherein said preferred diagonal direction comprises plus 45 degrees relative to the boundaries of said integrated circuit.

[c3]

3.The integrated circuit of claim 1, wherein said preferred diagonal direction comprises minus 45 degrees relative to the boundaries of said integrated circuit.

[c4]

4.The integrated circuit of claim 1, wherein said preferred diagonal direction comprises minus 45 degrees relative to the boundaries of said integrated circuit.

[c5]

5.The integrated circuit of claim 1, wherein said preferred diagonal direction comprises plus 60 degrees relative to the boundaries of said integrated circuit.

[c6]

6.The integrated circuit of claim 1, wherein said preferred diagonal direction comprises minus 60 degrees relative to the boundaries of said integrated circuit.

[c7]

7.The integrated circuit of claim 1, wherein said preferred diagonal direction comprises plus 30 degrees relative to the boundaries of said integrated circuit.

[c8]

8.The integrated circuit of claim 1, wherein said preferred diagonal direction comprises minus 30 degrees relative to the boundaries of said integrated circuit.

[c9]

9.The integrated circuit of claim 1, wherein said Manhattan direction of said at least one zag comprises a horizontal direction relative to the boundaries of said integrated circuit.

[c10]

10.The integrated circuit of claim 1, wherein said Manhattan direction of said at least one zag comprises a vertical direction relative to the boundaries of said integrated circuit.

[c11]

11.An integrated circuit comprising:

at least one metal layer comprising a plurality of conductors to interconnect points on the integrated circuit, said conductors being deposed in a preferred diagonal direction, wherein said preferred diagonal direction defines a direction, relative to the boundaries of the integrated circuit, for at least fifty percent of conductors on said metal layer; and

at least one zag conductor, coupled to a conductor deposed in a diagonal direction, said zag conductor being deposed in a Manhattan direction so as to interconnect points on said integrated circuit using at least one zag conductor and at least one preferred diagonal direction conductor.

[c12]

12.The integrated circuit of claim 11, wherein said preferred diagonal direction comprises plus 45 degrees relative to the boundaries of said integrated circuit.

[c13]

13.The integrated circuit of claim 11, wherein said preferred diagonal direction comprises minus 45 degrees relative to the boundaries of said integrated circuit.

[c14]

14.The integrated circuit of claim 11, wherein said preferred diagonal direction comprises minus 45 degrees relative to the boundaries of said integrated circuit.

[c15]

15.The integrated circuit of claim 11, wherein said preferred diagonal direction comprises plus 60 degrees relative to the boundaries of said integrated circuit.

[c16]

16.The integrated circuit of claim 11, wherein said preferred diagonal direction comprises minus 60 degrees relative to the boundaries of said integrated circuit.

[c17]

17.The integrated circuit of claim 11, wherein said preferred diagonal direction comprises plus 30 degrees relative to the boundaries of said integrated circuit.

[c18]

18.The integrated circuit of claim 11, wherein said preferred diagonal direction comprises minus 30 degrees relative to the boundaries of said integrated circuit.

[c19]

19.The integrated circuit of claim 11, wherein said Manhattan direction of said at least one zag conductor comprises a horizontal direction relative to the boundaries of said integrated circuit.

[c20]

20.The integrated circuit of claim 11, wherein said Manhattan direction of said at least one zag conductor comprises a vertical direction relative to the boundaries of said integrated circuit.

[c21]

21.An integrated circuit comprising:

at least one metal layer comprising a plurality of conductors to interconnect one or more points on the integrated circuit;

wherein at least one conductor comprises a plurality of wires deposed in different directions, the wire comprising a continuous conducting segment deposed in a single direction measured relative to the boundaries of the integrated circuit; and

wherein, for each connector that comprises more than two wires, at least 30 percent of the wires in the conductor are deposed in different directions.

[c22]

22.The integrated circuit as set forth in claim 21, wherein the direction comprises a Manhattan direction.

[c23]

23.The integrated circuit as set forth in claim 21, wherein the direction comprises a diagonal direction.

[c24]

24.The integrated circuit as set forth in claim 23, wherein the diagonal direction comprises an octalinear direction.

[c25]

25.The integrated circuit as set forth in claim 23, wherein the diagonal direction comprises a hexalinear direction.

[c26]

26.An integrated circuit comprising:

at least one metal layer comprising at least two pairs of conductors to interconnect one or more points on the integrated circuit, wherein a conductor comprises one or more wires and a wire comprises a continuous segment deposed in a single direction, each pair of conductors comprising:

a first wire deposed in a Manhattan direction relative to the boundaries of the integrated circuit, the first wire comprising a first wire length including first and second ends;

a second wire deposed in a diagonal direction relative to the boundaries of the integrated circuit, the second wire comprising a second wire length including first and second ends, the first end of the second wire being coupled to the second end of the first wire; and

wherein, an effective direction of the pairs of conductors comprises an angle, A, measured relative to the boundaries of the integrated circuit, defined by the expression Tan A = Y/X,

wherein, Y comprises a line segment with a distance starting from the second end of the second wire in the last conductor pair and ending at an intersection with a line segment propagated from the first end of the first wire and in the direction of the first wire, and - X comprises a distance, measured in the direction of the first wire, starting from the first end of the first wire and ending with the intersection of the Y line segment.

[c27]

27.The integrated circuit as set forth in claim 26, wherein the Manhattan direction for the first wire comprises a horizontal direction.

[c28]

28.The integrated circuit as set forth in claim 26, wherein the Manhattan direction for the first wire comprises a vertical direction.

[c29]

29.The integrated circuit as set forth in claim 26, wherein the diagonal direction comprises a plus 45 degree direction for the second wire.

[c30]

30.The integrated circuit as set forth in claim 26, wherein the diagonal direction comprises a minus 45 degree direction for the second wire.

[c31]

31.The integrated circuit as set forth in claim 26, wherein the diagonal direction comprises a plus 60 degree direction for the second wire.

[c32]

32.The integrated circuit as set forth in claim 26, wherein the diagonal direction comprises a minus 60 degree direction for the second wire.

[c33]

33.The integrated circuit as set forth in claim 26, wherein the diagonal direction comprises a plus 120 degree direction for the second wire.

[c34]

34.The integrated circuit as set forth in claim 26, wherein the diagonal direction comprises a minus 30 degree direction for the second wire.

[c35]

35.A method for simulating any wiring direction using wires deposed in diagonal and Manhattan directions, the method comprising the steps of:

providing at least one metal layer comprising at least two pairs of conductors to interconnect one or more points on the integrated circuit, wherein a conductor comprises one or more wires and a wire comprises a continuous segment deposed in a single direction;

for each pair of conductors:

deposing a first wire in a Manhattan direction relative to the boundaries of the integrated circuit, the first wire comprising a first wire length including first and second ends;

deposing a second wire in a diagonal direction relative to the boundaries of the integrated circuit, the second wire comprising a second wire length including first and second ends;

coupling the first end of the second wire to the second end of the first wire; and

wherein, an effective direction of the pairs of conductors comprises an angle, A, measured relative to the boundaries of the integrated circuit, defined by the expression Tan A = Y/X,

wherein, Y comprises a line segment with a distance starting from the second end of the second wire in the last conductor pair and ending at an intersection with a line segment propagated from the first end of the first wire and in the direction of the first wire, and X comprises a distance, measured in the direction of the first wire, starting from the first end of the first wire and ending with the intersection of the Y line segment.

[c36]

36.An integrated circuit comprising:

at least one metal layer comprising at least two pairs of conductors to interconnect one or more points on the integrated circuit, wherein a conductor comprises one or more wires and a wire comprises a continuous segment deposed in a single direction, each pair of conductors comprising:

a first wire deposed in a first Manhattan direction relative to the boundaries of the integrated circuit, the first Manhattan direction being different than the second Manhattan direction, the second wire comprising a second wire length including first and second ends;

a second wire deposed in a second Manhattan direction relative to the boundaries of the integrated circuit, the first Manhattan direction being different than the second Manhattan direction, the second wire comprising a second wire length including first and second ends, the first end of the second wire being coupled to the second end of the first wire; and

wherein, an effective wiring direction of the pairs of conductors comprises an angle, A, measured relative to the boundaries of the integrated circuit, defined by the expression Tan A = Y/X,

wherein, Y comprises a line segment with a distance starting from the second end of the second wire in the last conductor pair and ending at an intersection with a line segment propagated from the first end of the first wire and in the direction of the first wire, and X comprises a distance, measured in the direction of the first wire, starting from the first end of the first wire and ending with the intersection of the Y line segment.

[c37]

37.The integrated circuit as set forth in claim 36, wherein the first Manhattan direction comprises a horizontal direction and the second Manhattan direction comprises a vertical direction.

[c38]

38.The integrated circuit as set forth in claim 36, wherein the first Manhattan direction comprises a vertical direction and the second Manhattan direction comprises a horizontal direction.

[c39]

39.The integrated circuit as set forth in claim 36, wherein the first wire length equals the second wire length so as to simulate an effective direction of 45 degrees.

[c40]

40.The integrated circuit as set forth in claim 36, wherein the ratio of the first wire length to the second wire length equals three to two, so as to simulate an effective wiring direction of 60 degrees.

[c41]

41.The integrated circuit as set forth in claim 36, wherein the metal layer comprises a plurality of independent conductors deposed in parallel.

[c42]

42.A method for simulating a diagonal wiring direction using wires deposed in Manhattan directions, the method comprising the steps of:

providing at least one metal layer comprising at least two pairs of conductors to interconnect one or more points on the integrated circuit, wherein a conductor comprises one or more wires and a wire comprises a continuous segment deposed in a single direction;

for each pair of conductors:

deposing a first wire in a first Manhattan direction relative to the boundaries of the integrated circuit, the first wire comprising a first wire length including first and second ends;

deposing a second wire in a second Manhattan direction relative to the boundaries of the integrated circuit, the second wire comprising a second wire length including first and second ends;

coupling the first end of the second wire to the second end of the first wire; and

wherein, an effective direction of the pairs of conductors comprises an angle, A, measured relative to the boundaries of the integrated circuit, defined by the expression Tan A = Y/X,

wherein, Y comprises a line segment with a distance starting from the second end of the second wire in the last conductor pair and ending at an intersection with a line segment propagated from the first end of the first wire and in the direction of the first wire, and - X comprises a distance, measured in the direction of the first wire, starting from the first end of the first wire and ending with the intersection of the Y line segment.

[c43]

43.The method as set forth in claim 42, wherein the first Manhattan direction comprises a horizontal direction and the second Manhattan direction comprises a vertical direction.

[c44]

44.The method as set forth in claim 42, wherein the first Manhattan direction comprises a vertical direction and the second Manhattan direction comprises a horizontal direction.

[c45]

45.The method as set forth in claim 42, wherein the first wire length equals the second wire length, so as to simulate an effective direction of 45 degrees.

[c46]

46.The method as set forth in claim 42, wherein the ratio of the first wire length to the second wire length equals three to two, so as to simulate an effective wiring direction of 60 degrees.

[c47]

47.The method as set forth in claim 42, further comprising the step deposing a plurality of independent conductors in parallel.

Abstract of Disclosure